Development of molecular diagnostic tools to assess the introduction, establishment and ecology of invasive species in Puget Sound

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Non-native marine species have been and continue to be introduced into Puget Sound via several vectors including ship ballast water. Some non-native species become invasive and negatively impact native species or near shore habitats. Currently, there are no predictive capabilities to determine if a non-native species will become invasive. We have begun a project to develop DNA-based diagnostic tools to rapidly assess ship ballast samples for the presence of native and non-native species. Integrating microarray technology and novel nucleic acid chemistry the diagnostic systems will have the capacity to analyze up to 18,000 different species. This will allow us to analyze the presence and abundance of species representing near shore communities. In addition, these tools will allow us to monitor the temporal and biogeography of organisms that have planktonic larval stages.